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ABSTRACT

A study was conducted to examine school achievement in English and its relationship to personality, intelligence, motivation, and auditory ability factors. This report is a continuation of a previous one (Leino 1972) in which the relationships of personality and intelligence to foreign language teaching were investigated. The population studied consisted of Finnish secondary students in their sixth year of foreign language study The motivational and auditory variables in foreign language learning were related to school achievement in English, in order to discern what variables in each predictor group (personality, intelligence, motivation, and auditory ability) can best predict these achievements. A questionnaire rating English as to its pleasantness, importance, and difficulty was used to measure motivation. Auditory variables were measured by sound discrimination and sound-symbol association tests based on tape recordings of an unfamiliar language and nonsense English words. The results showed that English language skills as measured by the instruments of this research were best predicted in most analyses by reasoning ability and the ease and pleasantness of English. Personality played only a minor role. (LG)

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No. 40

March 1974

Anna-Liisa Leino

ENGLISH SCHOOL ACHIEVEMENTS AND SOME STUDENT CHARACTERISTICS II

On the Relationships of Motivational and Auditory Variable to English School Achievements. Final Analyses.

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I PURPOSE OF STUDY

The purpose of the present study is to survey the variance of school achievements in English by means of personality, intelligence, motivation, and auditory ability. This report is a continuation of a previous one (Leino 1972) in which the relationships of a personality and intelligence to foreign-language achievements were investigated. This report will first deal with the relationships of motivation and auditory ability to achievements, after which those variables of each group that appear to be the best predictors of school achievements in English will be included in the final analyses to determine their relative importance in accounting for the variance. It should be noted at this point that the verbs "predict", "account for", and "explain" are not used here with a reference to causal relationships. The choice of variables descriptive of foreign-language achievements was mainly based on Carroll (1962) and Pimsleur et al. (1968). According to Carroll (1962) foreign-language achievements vary as a function of aptitude, general intelligence, motivation, and the following two instructional variables: the opportunity the student has for learning and the adequacy of presentation of instructional material. The instructional variables were considered to be constant for reasons given in the first report.

II BACKGROUND

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1. On Motivation in Foreign-Language Learning

Motivation has often been employed as an explanation of differences in foreign-language attainment in studies which have shown how small a part of the variance can be accounted for by means of different ability variables alone (e.g. Carroll 1958; Pimsleur 1962, 1963; Wardhaugh 1967; Wittich 1962). The definitions that are given of motivation include the idea that motivation consists of variables which arouse, sustain, or direct behavior (Madsen 1961). There are, however, difficulties in conceptualizing and measuring those motivational variables. The motivational background of the present study is based on the sociopsychological theory of foreign language learning presented by Gardner et al. (1972) and the way motivation has been dealt with in other previous studies. Thus the present discussion of motivation is restricted to motivation in foreign language learning, it will not be extended to school motivation in general. Within the scope of this research it is not possible to attempt to solve the problem of the relationship between the two of them. On the other hand results of previous studies suggest a close relationship between school motivation in general and the motivation of one selected school subject (Werdelin 1967).

The sociopsychological theory of foreign language learning starts from Mowrer's concept of identification, which is the tendency of the child to imitate the parents in first-language development. According to Gardner et al. a process like identification, which is extended to another linguistic group, underlies the long-term motivation which is necessary to master a second language. Unlike Mowrer's identification with basic biological needs as its starting-point, the identification process in foreign-language learning is based on interpersonal or social needs and is therefore referred to as the learner's willingness to become a member of another linguistic group. This kind of orientation is called integrative motivation and it is determined by the learner's attitudes toward the foreign people. These attitudes partly explain how well the learner succeeds in learning the new language. In addition to acquiring a new set of verbal habits, the language student must be prepared to adopt aspects of behavior which are characteristic of the members of the other group. The integratively motivated student studies the foreign language because he finds it interesting and pleasant and because he wants to learn more about the other group and to meet with more and different people. The foreign-language learner's motivation can also be instrumental which is characterized by utilitarian reasons for studying the language e.g. getting into college or obtaining a better job. In this case the student is interested in the other group and their language as an instrument of achieving personal advantage.

The concept of integrative motivation resembles Nida's (1956-57) idea of motivation in foreign-language learning. According to him this motivation consists of desire to communicate and sensibility to the out-group. Nida's idea of motivation is based on his experiences in teaching a foreign language while the sociopsychological theory represented by Gardner et al. has evolved from many empirical studies in which the critical aspects of the theory were tested out. These studies have been carried out in numerous, mainly bicultural, communities.

The intensity of motivation or persistence demonstrated in foreign-language study was also dealt with. It is expressed in the amount of work done for assignments, in the opportunities taken to improve language skills outside school, in the interest in continuing the study of the language and in the interest in and attitude toward the work required in the studies. The latter aspect is especially connected with how easy, important, and useful the students consider the studies to be (Gardner et al. 1959, 1972).

2. Related Research on Motivation and Foreign Language Learning

The studies which were carried out during twelve years and which form the basis of the sociopsychological theory of foreign language learning are reviewed in detail in Gardner

et Lambert (1972). Only some of the main results are given here. The kind of student motivation that was investigated was influenced by the social structure of the communities where the students lived. Both instrumental and integrative motivation were found to contribute to foreign-language achievements. Motivation was often supported by a favorable parental attitude toward learning the foreign language, or a favorable view of the teacher and sensitivity for the feelings of others.

Pimsleur et al. (1964) compared under-achieving and average-achieving high school students on motivation. The under-achievers scored significantly lower than the average-achievers on measures of motivation which indicated the students' eagerness to study the language and his attitude toward learning it. The type of student motivation was measured by an instrument which consisted of three items typical of an integrative orientation and three typical of instrumental orientation. One instrumental item and two integrative items significantly discriminated between under- and average-achievers. The writers came to the conclusion that it is neither the intensity nor the type of motivation that differentiates certain types of under-achievers from average-achievers but simply the fact that under-achieving students do not find foreign language study relevant for any practical purpose or for pleasure in their lives.

Spolsky (1970) used the concepts of a membership group and a reference group in his study which was designed to investi-

gate integrative motivation. Membership group is the one to which an individual belongs. A group in which he wants to obtain or maintain membership is called a reference group. In a second-language learning situation an individual may choose the speakers of his own language as his reference group. According to Spolsky integrative motivation is related to the choice of the second-language group. Gardner et al. (1972) also speak about these groups. According to them the student may find his place in his membership group modified as a result of his greater proficiency in the foreign language which may cause the new linguistic-cultural group to become more than a mere reference group for him. The subjects of Spolsky's study were foreign-language students who were proficient in English and had come to the USA to study at universities. One instrument employed was a direct questionnaire in which students had to rate the importance of fourteen possible reasons for their having come to the USA. The reasons were classified as integrative or instrumental, which seems to have been difficult. The following two reasons, for example, were considered integrative: "having a chance to be away from home" and "finding out more about what I am like". The students were also given an indirect questionnaire, consisting of thirty adjectives. on which they were asked to rate how well each adjective described them, how well it described the way they would like to be, how well it described people whose native language was the same as theirs, and how well it described native speakers o English. Integrative motivation as meas-

ured by the direct questionnaire was not related to proficiency. The results of the indirect questionnaire, however, showed that the measure of the degree to which a student perceived himself as being like native speakers of the foreign language correlated significantly with proficiency in that language. Also the measure of a greater desire to be like native speakers than speakers of his own mother tongue correlated significantly with achievement. These measures could be interpreted as indications of integrative motivation. They refer to the importance of attitude toward native speakers of the language in second-language learning.

Mueller et al. (1970) found that student attitudes toward the language course influence the learning rate regardless of the amount of time spent at the task. Foreign-language learning is facilitated if the student finds the course easy, exciting, pleasant and useful toward achieving mastery of the language. Success in the course was also related to students' attitude toward foreigners. In a later study Mueller (1971) divided the subjects into the following groups on the basis of motivation: integratively oriented, instrumentally oriented (with job oriented and education oriented sub-groups) and those who took the foreign language because it was required. The difference between the last two groups is not very clear. It was found that both integratively and instrumentally motivated students had a more favorable attitude toward different aspects of the language and received higher grades than those who were only satisfying requirements.

There is not much evidence available to show what the importance of the attitude variable is when there are no speakers of the foreign language in the community. There are, however, studies designed to investigate the influence of foreign language instruction on the attitude toward speakers of that language (Laakso 1969; Riestra et al. 1964). When the scores on the attitude scales have been higher after instruction than before it, a conclusion of causal relationship has been drawn. It could be assumed that motivation plays a different role in learning different languages (Pimsleur 1963), its importance is different in groups taught with different methods (Chastain 1969) and it is also different depending on the foreign-language skill in question (Chastain 1970).

In studies of motivation in foreign-language learning the biggest problem has been how to measure motivation. It would be necessary to specify the concepts of integrative and instrumental motivation and develop instruments for measuring them so that they could be handled precisely. Often the way in which students have been categorized as belonging to an integratively or instrumentally motivated group has been rather crude. Most of the previous studies contain no information of the psychometric properties of the instruments employed. The samples have often been rather small.

3. On Auditory Ability

Nowadays speaking ability and listening comprehension are considered to be especially important objectives of foreign language teaching. They both involve auditory ability, which is defined as the ability to receive and process information through the ear (Pimsleur et al. 1964). Auditory ability is considered to function independently of intelligence and motivation (Pimsleur 1968) and presumably also personality. Carroll (1962) speaks about "phonetic coding" which makes it possible for a person to "code" auditory phonetic material so that it can be recognized and remembered later. According to Carroll the "coding" is a cognitive process by which a person can store auditory material in the mind. A student who is low in this ability is not able to repeat auditory material if some time has passed after he heard it and especially if he had to learn something else during the interval. It may even be difficult for such a person to repeat the material immediately after hearing it and also to associate the sounds he heard with their corresponding written symbols.

The role of auditory ability could be expected to be especially great in language laboratories, where the instruction is programmed and based on the assumption that the student, after making a mistake, is able to hear the difference between his own response and the model and produce the correct response.

4. Related Research on Auditory Ability and Foreign Language Learning

Pimsleur et al. (1962) used Chinese Pitch Perception, Seachore Pitch Test, and Seashore Timbre Test as instruments for measuring auditory ability. They found that, in addition to verbal intelligence and motivation, both pitch and timbre discrimination contributed to the prediction of French listening comprehension of college students. It has also been found that Seashore Pitch Test is related to success in French language laboratory courses at college (Leutenegger et al. 1964). In a study (Pimsleur et al. 1964), which was already referred to, auditory ability, as measured by Chinese Pitch Test and Sound-Symbol Test, was found to be a significant factor on which average-achievers and under-achievers differed from one another. The subjects were also asked to express their sense modality preference in learning the foreign language. It was found that under-achievers responded in a more eye-minded fashion than average-achievers. The results seemed also to indicate that the ear-minded students were more likely to enjoy studying the foreign language and be successful especially at auditory tasks. Those who learned equally through both modalities were found to be most intelligent followed by the ear-minded and then the eye-minded. In Chastain's study (1969) sense modality preference was not related to Spanish achievement in either of the groups of subjects. One of them had

been taught audiolingually and the other traditionally. Later Chastain (1970) found that those who had no sense modality preference were most successful in both groups.

The number of studies of auditory ability is rather small. Most of them have been carried out in the USA with Spanish or French as the target languages. The correlations between achievements and different measures of auditory ability have been positive but not very high. On the basis of the previous studies it would seem natural that the importance of auditory ability should be greater in truly audiolingual courses with speaking ability and listening comprehension as the main objectives than in courses where reading and writing are emphasized. There is no information of the role played by auditory ability in foreign language learning when the objective is total language skill consisting of listening comprehension, speaking, reading comprehension, and writing. Also the question of whether the impact of auditory ability is dependent on the characteristics of the target language is an open one.

III RESEARCH DESIGN AND PROBLEMS

The area of foreign language learning and achievements is wide and practically unexplored in our country. The present study concerns foreign-language achievements on senior secondary school level, which has not been investigated at all. Results of foreign studies are not applicable as such to foreign language learning in Finland because conditions of foreign-language study here are much different from those in the countries where the majority of previous studies have been carried out. The following points, for instance, should be taken into consideration.

- Finnish is not related to the foreign languages that are studied in our schools
- foreign-language study is compulsory for all secondary school pupils.

The subjects of the present research started studying the foreign language at the age of twelve, went on studying it for seven years, after which they took a compulsory examination. The present research concerns their sixth year of study.

It must also be pointed out that a great number of previous foreign studies concern adults learning a new language.

The present study is an exploratory field study, which must be considered as an attempt to lay groundwork for further studies. It concentrates only discovering relationships be-

tween school achievements in English and some student characteristics the choice of which is based on previous studies. The problems of the present part of the study are as follows:

1. What motivational variables are related to school achievements in English?
2. What auditory variables are related to school achievements in English?
3. By means of what motivational and auditory variables can the variance of school achievements in English be predicted best?

In the end the best variables of each predictor group (personality, intelligence, motivation, and auditory ability) will be included in the final analyses. What the best variables are will be suggested by the analyses performed. An answer is sought to the following question.

4. By means of what variables of each predictor group can the variance of school achievements in English be predicted best?

IV VARIABLES

1. Motivational Variables

The measures of motivation in related research consist of students rating how easy, important, exciting, and pleasant they find the study of the foreign language (Gardner et al. 1959, 1972; Mueller 1970; Pimsleur 1964). There is not much information available on these measures of motivation. Finding foreign-language study easy would seem to be connected with pupils' abilities, which makes its use as a measure of motivation very problematic. There is evidence to indicate that it is necessary to treat different aspects of foreign language study separately (Mueller 1970). In the present study the subjects were to rate the study of the English language as to its pleasantness, importance and difficulty. The use of these nouns was also based on Heinonen's research (1969) in which he found that pleasant, important and difficult were the adjectives most frequently employed by students when they were asked to write essays on different school subjects. The subjects were also to rate the pleasantness, the importance, and the difficulty of English grammar and translation exercises. Because of the compulsory school leaving examination at the end of senior secondary school foreign language instruction, to a great extent, consists of grammar and translation exercises. As the school of the subjects of this study has a

language laboratory it was considered necessary to ask the students to rate the pleasantness, the importance, and the difficulty of the exercises done in the laboratory. Based on the theory presented by Gardner et al. (1972) the students were also asked to indicate their attitude toward Englishmen and Americans and their extracurricula interest in English.

The following is a list of the motivational variables:

50. Pleasantness of English
51. Importance of English
52. Difficulty of English
53. Pleasantness of English Grammar and Translation Exercises
54. Importance of English Grammar and Translation Exercises
55. Difficulty of English Grammar and Translation Exercises
56. Pleasantness of Language Laboratory Exercises
57. Importance of Language Laboratory Exercises
58. Difficulty of Language Laboratory Exercises
59. Attitude towards Englishmen
60. Attitude towards Americans
61. Interest
62. Time

On the qustionnaire concerning the English language students were asked to mention the most pleasant academic subject (if English was mentioned it got five points), the second most pleasant subject (if English was mentioned it got four points), the most unpleasant subject (one point) and the second most unpleasant subject (two points). If English was not mentioned at all it got three points. The measurement of importance and difficulty was done in the same way. The rating of pleasantness, importance and difficulty was done with reference to

other subjects in order to get information on all the academic subjects studied in senior secondary schools. The scale 4-10 was used in the rating of grammar, translation and language laboratory exercises because that scale is the one which is employed in the reports and students are familiar with it. The rating was required to work in such a way that the more pleasant, important, and difficult the exercises were the higher the score they got.

The attitude scales designed by Laakso (1969) consisted of favorable and unfavorable statements such as "Englishmen are honest people", "Americans are unfriendly people". The scale was a five-point one ranging from strong agreement to strong disagreement. Item-analysis was performed by computing the correlations of each item with the total scores of the scales. They varied for Englishmen between .50 and .76 and for Americans between .37 and .75 . It is recommended that items with correlations lower than .20 should be discarded (Nunnally 1967). In this case it was not necessary to discard any items. An individual's score was the sum of his scores for the separate items.

The instrument that was used to measure interest supposedly measures opportunities voluntarily taken to improve one's knowledge of English outside school hours. The sixteen items of the questionnaire were based on essays written by Munkkivuori secondary school students in the fifth class during the autumn term 1970 on different ways of improving one's know-

ledge of English in extracurricula activities. The following are some examples of the items: "Do you listen to English radio programmes?" and "Do you read English newspapers?" The scale was a three-point one consisting of the following choices: often (two points), sometimes (one point), and never (0). Item-analysis was performed by computing the correlations of each item with the total score of the scale. The items with correlations lower than .20 were discarded as suggested by Nunnally (1967). An individual's score was the sum of his scores for the ten items left after the item-analysis.

Variable 62 measures the average time per week spent on work for English assignments at home. The answers were given on a six-point scale with times changing from less than one hour to more than five hours. The items of this questionnaire were based on the times given by pupils in the seventh class whose first foreign language was German, when they were asked how much time they spent on an average per week on their German assignments.

2. Auditory Variables

63. Sound Discrimination
64. Sound-Symbol Association
65. Sense modality preference

Variables 63 and 64 are from Pimsleur Language Aptitude Battery (1966).[1] In Sound Discrimination Test the subjects were taught

[1] The present writer wants to express her most sincere gratitude to professor Paul Pimsleur for sending the test with the permission to use it in this research

by tape recording three words in an African language called Ewé. The words were similar but not identical in sound. Then they heard sentences said in Ewé and had to indicate for each sentence, which of the three words it contained. Testing time was eight minutes for the thirty items. On Sound-Symbol Association Test the examinees heard a bisyllabic or trisyllabic English nonsense word. They were to identify, from among similar-looking words printed on their answer sheets, the one which was said. Testing time was nine minutes for the twenty-four items of the test. Since these tests have not been used on a Finnish sample before it was considered necessary to perform an item-analysis to see if there were items too easy or too difficult for Finnish students. Items 1, 12 and 17 in Sound-Symbol Association Test were discarded because more than 90 percent of the subjects could solve them correctly. Concerning the question of sense modality preference the students had to indicate in what way they thought they learned English best. There were three choices: listening to the lesson on a tape recording, reading it in the book and no preference. Scoring was done in the following way: one point for listening, two points for reading and three points for no preference.

V RESULTS

Information concerning the collection of data and the sample is given in the first part of the study (Leino 1972). The sample though not drawn randomly is considered to be representative of Finnish senior secondary school students for the reasons given (p. 22).

1. On Reliability and Validity of Instruments

There is no information available on the constancy of the ratings in the sample of this study. In another sample, however, the following constancy coefficients were obtained when the instruments were presented twice with a few days' interval:

50. Pleasantness of English	.73
51. Importance of English	.83
52. Difficulty of English	.67
53. Pleasantness of Grammar and Translation Exercises	.91
54. Importance of Grammar and Translation Exercises	.71
55. Difficulty of Grammar and Translation Exercises	.46

Because the sample that was used for checking the instrument came from a school with no language laboratory there are no estimates available concerning the constancy of the ratings of language laboratory exercises. The reliabilities of the attitude scales and interest questionnaire were estimated using the Kuder-Richardson procedure. The following estimates are received:

59. Attitude toward Englishmen	.78
60. Attitude toward Americans	.73
61. Interest	.79

The split-half reliabilities of Sound Discrimination and Sound-Symbol Association have ranged between .60 - .77 (Pimsleur 1966). The Kuder-Richardson reliabilities of those tests in this sample were .61 and .47 .

Lack of suitable criteria has made it difficult to solve the problem of the validity of the instruments employed. An attempt was made to estimate the validity of students' ratings concerning the pleasantness, the importance and the difficulty of English using the scores of an attitude scale as criteria. The scale consisted of the statements "English is a pleasant subject", "English is an important subject", and "English is a difficult subject". The scale was a five-point one ranging from strong agreement to strong disagreement. The two instruments were tried on another sample. The correlations between the two instruments were .55 for pleasantness, .35 for importance and .70 for difficulty. The question of the validity of the criterion is open. Of the validity of the other instruments there is only the information of the Pimsleur Language Aptitude Battery, whose predictive validities have ranged between .44 - .79 .

The content validity of the motivational instruments cannot be assumed to be high. Owing to the inadequacy of the motivational framework that was available only a small area of mo-

tivation was covered and even that mainly concerned motivation in the context of school. With the progress of empirical research the area of motivation covered will be larger. Attitudes were dealt with in connection with motivation because it was assumed that having a positive attitude toward English-speaking people would motivate students in their foreign-language study.

2. Relationships at Correlational Level

The means, standard deviations, and intercorrelations of the motivational and auditory variables are to be found in Appendix 1. The correlations of the motivational and auditory variables to the English school achievement variables, which were described in the first part of this research (Leino 1972), are presented in Table 1. A list of all the variables of the whole research is to be found in Appendix 3.

The pleasantness and difficulty of English has significant correlations with almost all achievement variables. The negative correlations of difficulty show, in fact, that it is the ease of the language, as experienced by students, that is connected with achievements. Ease and pleasantness are also significantly related to each other. Judging by the mean and standard deviation of the importance variable students rather unanimously regard the English language as important. Importance has, however, only three significant correlations with

the school achievement variables and none with the grades assigned by the teacher.

Table 1. Correlations of Motivational and Auditory Variables to English School Achievement Variables (N=64)

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	49
50	.42	.37	.28	.14	.45	.53	.59	.33	.39	.05	.37	.48	.15	.36	.31	.51	.44	.52
51	.14	-.10	.21	-.12	.20	.12	.40	.13	.24	-.05	.15	.18	.43	.23	.04	.20	.22	.23
52	-.39	-.29	-.32	-.18	-.41	-.37	-.55	-.48	-.44	-.09	-.36	-.50	-.30	-.39	-.43	-.58	-.57	-.57
53	.26	-.04	.12	.25	.21	.07	.20	.18	.09	-.07	.15	.22	.36	-.06	.23	.00	.19	.20
54	-.01	-.09	-.02	.08	-.07	-.14	-.10	-.14	-.06	.08	-.15	-.07	.08	-.12	.00	-.15	-.11	-.09
55	-.29	-.23	.06	-.14	-.31	-.21	-.29	-.19	-.31	-.09	-.16	-.31	-.23	-.21	-.16	-.33	-.29	-.31
56	-.02	.00	-.15	.04	.03	.10	-.11	-.19	-.18	-.19	.02	-.15	-.21	.01	-.18	-.09	.06	-.11
57	-.21	-.32	-.04	-.16	-.08	.06	-.06	-.20	-.01	-.12	-.17	.19	.08	-.01	-.14	.00	-.05	-.13
58	.08	-.04	.26	.11	.14	-.14	.05	.22	.05	.03	.00	.07	.07	.08	.23	-.07	.13	.11
59	.26	.25	.26	.16	.28	.06	.25	.12	.22	.00	.17	.29	.24	.32	.24	.25	.30	.31
60	.19	.18	.16	.16	.23	.12	.30	.24	.34	.11	.07	.30	.22	.16	.34	.15	.31	.30
61	.05	-.12	.31	.00	.16	-.07	.11	.04	.29	.05	.08	.04	.29	.00	.01	.03	.11	.11
62	-.08	.04	.10	-.05	-.04	-.34	-.04	-.11	-.15	-.23	-.23	-.03	-.02	-.15	-.07	-.27	-.16	-.15
63	.12	.21	-.10	-.07	.08	.03	.03	.09	.11	.14	.08	.08	-.10	.20	.22	.10	.18	.12
64	.30	.12	.17	.20	.23	.35	.31	.40	.41	.32	.31	.29	-.04	.28	.27	.44	.34	.40
65	.03	-.10	-.15	.06	.03	-.18	-.06	-.13	-.22	.05	-.14	-.06	-.10	-.02	-.03	-.18	-.17	-.11

Level of significance	.05	.24
	.02	.29
	.01	.31

As for grammar and translation exercises, their pleasantness has very few significant correlations with the school achievement variables and their importance none. The exercises are, however, considered quite important. The ease of the exercises is mainly connected with those language skills that are espe-

cially trained at school.

The ratings concerning language laboratory exercises are not connected with achievement variables. Only two of the correlations are significant. Generally speaking language laboratory work is not considered to be very pleasant, important, or difficult.

Students have a more positive attitude toward Englishmen than Americans and the number of significant correlations with achievements is greater with Attitude toward Englishmen than Americans. One explanation might be the fact that students have more opportunities of going to England for the summer. It must also be noted that, in the textbooks that have been used with the subjects of this study, the number of chapters dealing with England is greater than that of chapters dealing with the USA. The influence of TV could also be discussed.

Interest has significant correlations only to recognition of grammatical structures, reading comprehension and written production, which are not usually practised as such at school. Usually, for example, there are no special exercises in written production although it has been a part of the new version of the school leaving examination. The new version has not had any great importance so far, since students have the right to decide which form of the test they want to take and the great majority have taken translation.

The correlations between the average time per week spent on

work for English assignments and achievements are slight and in most cases negative. Low-achieving students evidently spend more time on their homework. The result is not much different from what was found out in the International Study of Educational Achievement in Mathematics (Husén 1967).

Of the auditory variables Sound Discrimination does not correlate significantly with any of the achievement variables. On the other hand Sound-Symbol Association correlates significantly with most of the English achievement variables. Evidently the ability to make associations of sounds with their written symbols is necessary in advanced courses where teaching and the evaluation of student achievement is largely based on written work.

3. Relationships to General Dimension of English School Achievements

In order to find out which of the motivational and auditory variables are the best predictors of English school achievements a stepwise multiple regression analysis was carried out with variable 49, the General Dimension of English School Achievements, as the criterion. This variable was resorted to for reasons given previously (Leino 1972). Stepwise multiple regression analysis was resorted to because it is best suited for prediction purposes (J. Leino 1972).

Table 2. Stepwise Multiple Regression Analysis with General Dimension of English School Achievements as Criterion and Motivational and Auditory Variables as Predictors

Predictors	Standardized Regression Coefficients				
	1	2	3	4	5
52. Ease of English	-.57	-.40	-.37	-.38	-.30
50. Pleasantness of English		.31	.31	.35	.34
60. Attitude Americans			.23	.21	.21
58. Difficulty of Lab Exercises				.21	.21
64. Sound-Symbol Association					.19
Constant	683.79	523.51	381.29	304.59	184.19
R^2	.32	.39	.44	.48	.51

Only those variables that gave a significant increase in the proportion of the variance accounted for are presented in the table. As can be seen the best predictors are the ease and pleasantness of English and the proportion of variance accounted for by them is 39 percent. The correlations of the two attitude scales with the criterion were practically the same. Attitude toward Englishmen had a greater number of significant correlations with the single variables of which the criterion consists. The emergence of attitude toward Americans is explained by the fact that its correlation with the preceding variable is lower (.08) than the correlation of attitude toward Englishmen with the same variable (.28). This means that the increase given by attitude toward Americans in the proportion of variance accounted for is greater than

the increase given by attitude toward Englishmen would be. The emergence of variable 58 in the model does not seem very relevant and must be due to chance. It could be explained by the fact that its correlations with all the variables in the same model are rather low, so the increase in the proportion of variance accounted for by it becomes greater than would be with variables which correlate more highly with one another. Generally speaking it is one of the weaknesses in the use of regression analysis that the importance of error is emphasized when the differences in the size of correlations are slight both with the criterion and one another. The proportion of variance accounted for by all the variables in the model was 51 percent.

To obtain an answer to the problem of how great a part of the variance of English school achievements will be explained by means of the best variables of each predictor group a stepwise multiple regression analysis was carried out with variable 49 as criterion and the following personality and intelligence variables: 21. Factor C, 26. Factor I, 27. Factor L, 35. R1/Ab, 38. V12/0, 39. WM1/0 and the previously mentioned (Table 2) motivational and auditory variables as predictors. The choice of the personality and intelligence variables was based on the results of the previous study (Leino 1972). The correlations of motivational and auditory variables to personality and intelligence variables are presented in Appendix 2.

Table 3. Stepwise Multiple Regression Analysis with General Dimension of English School Achievements as Criterion and the Best Variables of Each Group as Predictors (N=64)

Predictors	Standardized Regression Coefficients						
	1	2	3	4	5	6	7
35. Reasoning	.57	.56	.50	.48	.42	.38	.39
50. Pleasantness of English		.49	.36	.36	.33	.31	.31
52. Ease of English			-.24	-.23	-.20	-.20	-.16
60. Attitude Americans				.15	.17	.21	.20
38. Words in Internat. Use					.17	.18	.18
21. Factor C						-.14	-.19
22. Factor L							-.14
Constant	361.88	195.94	332.96	248.63	191.03	216.15	285.83
R^2	.34	.58	.62	.65	.67	.68	.70

Only those variables that gave a significant increase in the proportion of variance accounted for are presented in the table. As can be seen 70 percent of the variance of English school achievements could be explained by means of the best variables of each predictor group. Reasoning-type of verbal intelligence showed to be the best predictor, whose proportion of the explained variance was 34 percent. The next three variables were all motivational ones and the increases given by them in the variance accounted for were as follows: Pleasantness of English 24 percent, Ease of English 4 percent and Attitude towards Americans 3 percent. Their proportion of the explained variance was 31 percent. Words in International Use gave an increase of two percent in the explained variance and the two personality variables together 3 percent.

VI ANALYSES WITH READING COMPREHENSION AND LISTENING COMPREHENSION AS CRITERIA

1. On Use of General Dimension of English School Achievements

In the previous analyses the general dimension of English school achievements was used as the criterion, because the factor-analyses that were carried out yielded no clear structure that could have been used as the basis for further analyses (Leino 1972). It was necessary to reduce the number of the variables and the general dimension best covered the areas of foreign language skills as measured in this study. All the information concerning English school achievements is not, however, included in it. About 16 percent of the variance of the variables was left outside the general dimension, the highest loading of which was that of the final spring semester grade. Information of a regression analysis carried out with the best variables as predictors and final spring semester grades as the criterion is also available (J. Leino 1972). The teacher assigned grade is best predicted by Ease of English (33 percent), Reasoning (increase 15 percent) and Attitude toward Englishmen (increase 4 percent).

To get information not included in the general dimension two regression analyses were carried out with Reading Comprehension and Listening Comprehension II as criteria. The choice of these

variables was based on the following considerations: the factor analyses that were carried out indicated that Reading and Listening Comprehension cannot be considered to be entirely represented by the general dimension, though the correlations with it are rather high (.75 and .64); the reliabilities of these instruments were considered to be sufficient for research purposes (Listening Comprehension I was left out on account of rather low reliability); these variables represent what Lado (1967) calls integrated language skills, not only elements, and they have been given considerable attention in the newly formulated objectives of foreign language teaching (Nykykielet 1971). Teaching reading comprehension has so far mainly been carried out by means of translation and intensive analysis of foreign texts. The results of this type of teaching are clearly seen at the university level where students have difficulties in reading foreign textbooks quickly and with comprehension. The new objectives emphasize the importance of extensive reading. Listening comprehension has hardly been practised at all as such, although great importance has been attached to language as means of communication. Communication is a two-way process also involving the student's ability to understand what is said to him. On the basis of previous research it could be expected that training listening comprehension will also improve the student's ability to speak the foreign language (Silva 1966). On the other hand training oral ability has not been found to improve aural ability (Belasco 1971). This is natural, if oral

training mainly happens by means of drill exercises. There is a lot of well-founded criticism against their use as the only means of training students' speaking ability (e.g. Barrutia 1966; Chastain 1969a; Gefen 1967; Politzer 1968; Spolsky 1966).

2. Background of Reading and Listening Comprehension

Receptive language precedes productive language and the principle of listen-speak-read-write sequence is followed in foreign language teaching. More attention has, however, been given to the analysis of productive language than to the process by which language is understood (Goodman 1971; Mear 1971). Receptive skills are often called passive the indication evidently being that they need no effort on the part of the student. They have even been said to represent a "lower" standard of foreign language skills as opposed to speaking and writing which represent a "higher" standard (Roininen 1971).

According to Goodman (1971) the receptive process starts with auditive or visual input and ends with meaning as output. The efficient language user gets to this goal by sampling the linguistic material. In doing so he relies on redundancy, which according to Rivers (1968) is fifty percent in the English language. This means that most English utterances contain twice as much linguistic material as is necessary to convey the meaning. Redundancy makes it possible for us to understand

even a distorted message whether it be written or oral. The efficient language user predicts structures, tests them against the semantic context which he constructs from the situation and then confirms or disconfirms as the process goes on. So the receptive language processes are cycles of predicting, testing, and confirming (Goodman 1971).

The fact that oral language had been neglected for such a long time has made many researchers almost disregard the written form of language calling it e.g. "a form of communication which is both less important and easier to achieve" (May et al. 1971, p. 9). Goodman (1971) considers written language very important, not only because it is a way of preserving oral language but because it makes communication possible over time and space. In reading a foreign language the student is able to proceed at his own speed; he may go back and read again what he did not understand at once; he may resort to dictionaries. The text which he is reading is usually out of situational context.

While listening the student is under a kind of time pressure, he must adjust to the speed of the speaker. The factors of attention and memory are vitally involved in listening process (Rivers 1971). The situational context, actions and gestures of the speaker usually help comprehension.

What has been said before is summarized on the next page in Table 4.

Table 4.

Comprehension

Reading	Listening
input: visual one's own speed rereading no situational context	input: auditive speaker's speed attention, memory situational context
the redundancy of language sampling, predicting testing, confirming output: meaning	

The two processes are basicly similar but there are, however, so many differences that it is reasonable to assume that different student characteristics are connected with them. The problem of the reliability of the variables used makes it, however, impossible to extend the description of the analyses to a direct comparison of what student characteristics are especially related to reading comprehension and what especially to listening comprehension.

3. Analyses

Table 5. Stepwise Multiple Regression Analysis with Reading Comprehension as Criterion and the Best Variables of Each Group as Predictors (N=64)

Predictors	Standardized Regression Cofficients					
	1	2	3	4	5	6
35. Reasoning	.53	.51	.52	.46	.39	.38
50. Pleasantness of English		.36	.34	.29	.26	.26
61. Interest			.27	.27	.28	.25
64. Sound-Symbol Association				.22	.24	.24
36. Ebbinghaus					.21	.18
60. Attitude Americans						.14
Constant	2.18	-0.65	-2.03	-3.96	-4.91	-6.32
R^2	.28	.41	.49	.53	.57	.59

All those personality, intelligence, motivational, and auditory variables that correlated significantly with variable 10, Reading Comprehension, were included in the analysis. Only those variables that gave a significant increase in the proportion of variance accounted for are presented in the table above. Reasoning and Pleasantness of English emerged as the best predictors explaining 41 percent of the variance of the variable. Interest (opportunities taken to improve one's knowledge of English outside school hours) and sound-symbol association are aids to reading comprehension, too. Ebbinghaus, like interest, had not emerged as a predictor in any of the analyses carried out previously. Ebbinghaus measures both vocabulary and fluency

and also native language reading comprehension since it is a blank-filling test. It resembles a technique called the cloze procedure, which is used for measuring foreign-language reading comprehension. In the cloze procedure the deleted words are, however, chosen objectively (Anderson 1971, Carton 1971). It can be stated that, with the exception of the last variable, the correlations of the new variables with the immediately preceding variables in the model were practically zero. The percentage of the variance accounted for was 59.

Table 6. Stepwise Multiple Regression Analysis with Listening Comprehension as Criterion and the Best Variables of Each Group as Predictors (N=64)

Predictors	Standardized Regression Coefficients		
	1	2	3
38. Words in International Use	.42	.34	.21
50. Pleasantness of English		.27	.29
35. Reasoning			.30
Constant	2.98	1.61	0.94
R^2	.18	.24	.32

In the same way as in the preceding analysis all those personality, intelligence, motivational, and auditory variables that correlated significantly with variable 12, Listening Comprehension II, were included in the analysis. Only those variables that gave a significant increase in the proportion of variance accounted for are presented in the table above. The

best predictor, Words in International Use, can also be considered to give a measure of linguistic interest. Evidently it is an aid to listening comprehension, which is not practised as such at school. A linguistically interested student picks up linguistic material or items outside school, though he may not have it as his hobby to consciously seek opportunities to improve his English outside school as is shown by the low negative correlation between the variables 38 and 61. The third predictor, Reasoning, has emerged in all the analyses in which intelligence variables have been included. Only 32 percent of the variance of listening comprehension could be accounted for.

VII DISCUSSION

Before the results can be discussed it is necessary to deal with the use of regression analysis, which was based on the assumption of linearity. When regression analysis is employed the number of subjects should be at least two or three times as big as that of variables (Kulokari 1970). It was not possible to follow this principle in the present research, which must be kept in mind when the results are dealt with. The number of subjects was 64 and that of predictors 37. With a small sample and a great number of variables it is possible, as a result of random errors, to find a combination of variables which gives a high multiple correlation coefficient and makes further studies necessary to control shrinkage and validate the results. It is very likely that the new results will be different from the original ones (J. Leino 1972). The present study must be considered as a starting-point for further research of a field so far practically unexplored in our country. On the basis of this research it is possible to select from among the predictors those that were the best and repeat the study in other samples. Thus it is possible to make the number of predictors smaller. Other points that should be given attention to in an attempt to control shrinkage would be improving the reliabilities of the instruments and increasing the size of the samples (J. Leino 1972). The question of how widely the achievements should be measures is also worth reconsidering.

Another weakness in the use of regression analysis was the fact that the predictors were not uncorrelated, which is true of most behavioral studies. This could have been avoided partly by the use of the factor-analysis of the predictors. The purpose was, however, to discover which of the employed variables are the best predictors of achievements in English. Besides, the question of the intercorrelations of the predictors is most acute when standardized regression coefficients are interpreted (J. Leino 1972). From the point of view of the purpose of this study interpreting them was not relevant.

Question concerning the sample of students and the influence of teachers must also be remembered when the results are discussed. The sample of students though not randomly drawn was considered representative of senior secondary school pupils for reasons given (Leino 1972 p. 22). The method used by the teachers in the three groups of students could be assumed to have been the same (Leino 1972 p. 3) but there is no information of the influence of the teachers' personality on the achievements.

Bearing the above mentioned limitations in mind it can be stated that the English language skills as measured by the instruments of this research were best predicted in most analyses by a reasoning-type of verbal intelligence and ease and pleasantness of English as experienced by pupils. It must be pointed out in this connection that the term predict is used

here with no reference to a causal relationship.

Personality, as measured by Cattell's 16 PF, played only a minor role in explaining the variance of English school achievements. A reason for this might be the fact that activities in foreign language classroom are very much teacher-controlled. There is not much freedom of choice for either teachers or pupils which could be attributed to the school leaving examination. Another limitation is the time that is available for the study of a foreign language. The teacher has to carry out classroom activities in such a way that the amount of time devoted to those skills that are not tested at the end of senior secondary school is minimized. It is obvious that more time is needed to learn all the skills of a foreign language than is available in schools. According to Allen et al. (1972) two and a half weeks of living with a French family is the equivalent of one year's instruction in high school. There is no information how that figure was arrived at and what the class level in question is. It is probably low or intermediate level. It could be assumed that with more opportunity for student freedom and more time available the role of personality might be greater.

Of the intelligence variables that were employed Reasoning was the best predictor. After learning elementary and intermediate vocabulary and grammatical structures, which happens in junior secondary school, students in senior secondary school have to learn to produce words and sentence patterns in new, more dif-

ficult combinations and also to infer meanings of such combinations. These activities seem to be based on the student's ability to reason by means of analogy. The achievements at lower level might be best predicted by some other type of intelligence.

As for motivation the area that was covered in this study remained narrow and mainly concerned motivation in the context of school. No attempt was made to deal specifically with instrumental motivation foreign-language study being compulsory for everyone. Of all the groups of variables in terms of which English school achievements were described the motivational variables are considered to be those which a teacher can influence. The best motivational variables were the Pleasantness and Ease of English. It is difficult, however, to know what the causal relationship is. In other words, does the student find English easy and pleasant because he is successful at it, or is he successful at it because he finds it easy and pleasant. In their research Gardner et al. (1972) felt justified in drawing the conclusion that motivation and attitudes determine the student's progress in learning a foreign language because they are related to achievement independent of intelligence and because attitudes towards speakers of a foreign language are developed in the home before language training starts as suggested by the strong relationship between parents' and children's attitutes. No matter what the causal relationship is in this case the teacher

has ways of motivating pupils. Foreign guest speakers can be invited to visit the teacher's classes, pupils can be encouraged to watch foreign films ignoring the subtitles, they can be encouraged to have foreign pen pals, they can be recommended extra reading etc. Also the teacher's attitude toward pupils, his expectancies and his responsiveness to the needs of the students can have a motivating effect. Student motivation must also be taken into consideration in the discussion of objectives of foreign language instruction and in the production of materials.

It must finally be mentioned that the early stages of foreign language learning have been the centres of greatest interest in our country, which is to be seen in the production of teaching and learning materials, in the development of achievement tests, in the discussion of methods and in teacher training. The trend has been the same in other countries as well, where concentration given to the early stages "has been out of all proportion" (Elliott 1972 p. 223). More attention should be given to intermediate and advanced levels.

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Appendices

Table 1. Means, Standard Deviations and Intercorrelations of Motivational and Auditory Variables (N=64)

																	Level of significance		Mean	S.D.
50																	.05	.24	3.48	0.99
51	.22																.02	.29	4.22	0.90
52	-.54	-.19															.01	.31	3.39	1.05
53	.20	.18	-.04																6.61	1.54
54	-.29	-.03	.09	.31															8.91	1.20
55	-.43	-.04	.43	-.13	.34														7.61	1.27
56	.02	-.19	.24	.06	-.07	.14													6.86	1.76
57	-.05	.19	.05	.04	-.11	.09	.37												6.53	1.94
58	-.20	.07	.12	.15	.07	.34	.24	.19											5.86	1.63
59	.28	.25	-.14	.11	.04	-.13	-.01	-.11	.00										31.25	4.68
60	.08	.07	-.14	.10	.00	-.23	-.15	-.09	.07	.41									29.48	5.14
61	.09	.37	-.09	.13	.07	-.01	-.07	.07	.36	.39	.19								8.28	3.49
62	-.21	.07	.32	.11	.27	.31	.21	.11	.31	.02	.06	.07							3.23	1.56
63	-.03	.03	-.26	-.23	-.06	-.14	-.04	-.18	.00	-.03	.08	-.09	-.22						20.45	4.01
64	.23	-.07	-.40	-.17	-.13	-.18	-.02	.02	-.04	-.04	.05	.00	-.32	.28					14.31	2.86
65	-.24	.18	.18	.17	.13	.20	-.04	-.03	.25	.07	.00	-.12	.03	.02	-.17				1.94	0.79
	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65				

Table 2. Correlations of Motivational and Auditory Variables to Personality and Intelligence Variables (N=64)

	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
50	.00	.19	-.07	.00	.09	-.11	-.03	.05	-.15	-.36	.11	-.06	.08	.04	.09	.02	.06	.13	.10	.30	.14
51	.11	.04	-.03	-.17	.03	-.07	.10	.37	-.35	-.19	-.08	.04	.07	.01	.09	.05	.01	.12	.18	.11	.18
52	.11	-.16	.08	.07	-.06	.11	.07	-.05	.24	.23	.00	.09	-.14	.04	-.27	.16	-.26	-.14	-.15	-.35	-.13
53	-.08	-.02	-.14	-.19	-.09	.33	-.13	.22	-.06	.05	.10	.31	-.04	.17	-.03	.19	.06	.03	.26	.00	.40
54	-.02	-.26	-.02	-.10	-.27	.36	-.04	-.01	-.02	.00	.11	.14	-.22	.09	-.11	.21	.00	-.01	.08	-.29	.07
55	.07	-.13	-.03	-.06	-.21	.04	.01	-.06	.11	.08	-.26	.15	-.02	-.16	-.09	.15	-.19	-.20	-.35	-.40	-.13
56	.03	.06	-.17	.13	-.08	.07	-.05	.10	-.03	.09	.03	.04	.19	-.01	.00	.00	-.11	-.10	-.06	.07	-.21
57	-.03	-.08	-.03	-.05	-.17	.08	.00	.02	-.02	.32	-.09	.01	.09	-.04	.03	-.04	-.14	-.14	.05	.03	-.17
58	.03	-.08	-.24	-.26	-.17	-.01	-.25	-.04	.14	.19	-.24	.38	-.09	.07	-.06	.21	.11	-.10	.09	-.18	.16
59	.40	.11	.15	-.04	.24	.17	.05	-.11	-.26	-.34	.24	-.19	-.12	-.03	.05	-.09	.08	.28	.16	.08	.10
60	.15	-.01	.23	-.04	.23	.37	.02	-.13	-.18	.00	.19	-.10	-.07	.04	.14	-.13	.20	.28	.35	.00	.28
61	.36	.03	-.04	.02	.20	-.04	.10	.04	-.07	-.05	-.07	.26	-.09	-.11	.00	.27	-.02	-.12	.07	-.12	-.04
62	.14	-.06	.00	-.20	-.15	.27	.01	.20	-.18	-.04	-.10	.27	-.06	.01	.00	.15	-.20	-.01	.00	-.35	.12
63	-.07	-.16	.00	.08	-.03	-.28	-.01	-.13	.04	-.18	.06	-.25	-.08	.05	.04	-.32	.22	-.05	.15	.15	.17
64	-.12	-.04	-.09	.16	.04	-.08	-.21	-.19	.07	-.12	-.08	-.03	.06	-.05	-.06	-.15	.27	.04	.19	.45	.14
65	.02	-.29	.07	-.14	-.10	-.03	-.04	.14	-.04	-.02	-.12	-.13	.14	.04	.08	-.27	.09	.04	.04	-.03	.07

Level of significance	.05	.24
	.02	.29
	.01	.31

List of Variables

1. Recognition of Sounds
2. Production of Sounds
3. Production of Stress
4. Recognition of Grammatical Structures
5. Production of Grammatical Structures
6. Recognition of Vocabulary
7. Recognition of Idioms
8. Production of Vocabulary
9. Spelling
10. Reading Comprehension
11. Listening Comprehension (I)
12. Listening Comprehension (II)
13. Translation
14. Written Production
15. Evaluation of Speaking Ability
16. Grammar Test
17. Translation Test
18. Final Spring Semester Grade
19. Factor A: Cyclothymia-Schizothymia
20. Factor B: General Intelligence-Mental Defect
21. Factor C: Emotional Stability-Dissatisfied Emotionality
22. Factor E: Dominance-Submission
23. Factor F: Surgency-Desurgency
24. Factor G: Super-ego Strength-Lack of Rigid Internal Standards
25. Factor H: Parmia-Threctia
26. Factor I: Premsia-Harria
27. Factor L: Protension-Relaxed Security
28. Factor M: Autia-Praxernia
29. Factor N: Shrewdness-Naivité
30. Factor O: Guilt Proneness-Confident Adequacy
31. Factor Q1: Radicalism-Conservatism
32. Factor Q2: Self-Sufficiency-Group Dependancy
33. Factor Q3: High Self-Sentiment Formation-Poor Self-Sentiment Formation
34. Factor Q4: High Ergic Tension - Low Ergic Tension
35. R1/Ab, a test of verbal anelogy
36. V1/Ab, Ebbinghaus
37. V9/O, artificial language
38. V12/O, words in international use
39. WM1/O, word memory
49. General Dimension of English School Achievements
50. Pleasantness of English
51. Importance of English
52. Difficulty of English
53. Pleasantness of English Grammar and Translation Exercises
54. Importance " "
55. Difficulty " "
56. Pleasantness of Language Laboratory Exercises
57. Importance " "
58. Difficulty " "
59. Attitude towards Englishmen
60. Attitude towards Americans
61. Interest
62. Time
63. Sound Discrimination
64. Sound-Symbol Association
65. Sense Modality Preference

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